

**Amendments to the Claims:**

The following listing of claims will replace all prior versions, and listings, of claims in the application:

1. (Currently Amended) A method of scanning comprising:

providing a scanning system having a sample holder and a relatively movable scanning device, the sample holder having a rotatable or longitudinal axis;  
performing a scan of at least a part of an object located on the sample holder and of at least a portion of a surface of the sample holder;

using data from the scan, establishing orientation of a plane of the sample holder; and thereby establishing any misalignment or non-colinearity of the sample holder with respect to the rotatable or longitudinal axis; and

interpreting data from the scan using the orientation of the sample holder, the orientation being established using data from the scan of the object holder in order to correct the data for any misalignment or non-colinearity.

2. (Previously Presented) A method according to claim 1 wherein the orientation is established by defining a plane of the sample holder.

3. (Previously Presented) A method according to claim 2 wherein the plane in which orientation is established is limited by boundaries.

4. (Previously Presented) A method according to claim 1 wherein the orientation is established by extracting at least three measurements.

5. (Previously Presented) A method according to claim 1 wherein the orientation is established by extracting data for at least 240° around the surface of the sample holder.

6. (Previously Presented) A method according to claim 1 wherein the orientation is established by measuring during a single process.

7. (Previously Presented) A method according to claim 1 wherein the orientation is established by measuring during more than one discrete processes.

8. (Previously Presented) A method according to claim 1 wherein the orientation is established within a defined vertical envelope with respect to the sample holder.

9. (Currently Amended) A method of scanning comprising:

providing a scanning system having a sample holder and a relatively movable scanning device, the sample holder having a rotatable or longitudinal axis;  
scanning performing a datum scan to establish any misalignment or non-colinearity of the sample holder with respect to the rotatable or longitudinal axis;  
scanning performing a scan of a sample; and  
interpreting data from the sample scan using any misalignment or non-colinearity data from the datum scan in order to correct the data for any misalignment or non-colinearity;  
wherein the scanning system automatically carries out the datum and sample scans.

10. (Currently Amended) A method of scanning comprising:

providing a scanning system having a sample holder and a relatively movable scanning device, the sample holder having a rotatable or longitudinal axis;  
scanning performing a datum scan to establish any misalignment or non-colinearity of the sample holder with respect to the rotatable or longitudinal axis;  
scanning performing a scan of a sample; and  
interpreting data from the sample scan using any misalignment or non-colinearity data from the datum scan in order to correct the data for any misalignment or non-colinearity;  
wherein both the datum and sample scans are carried out effectively as one scan.

11. (Previously Presented) The method of scanning according to claim 1 wherein the scan of the object and the scan of at least a portion of the sample holder are conducted as a single scan.

12. (Currently Amended) The method of scanning according to claim 9 wherein the  
~~scanning a datum~~ scan and the ~~scanning~~ scan of a sample are conducted as a single scan. |